UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,008	12/10/2003	Richard D. Bunch	HSJ9-2003-218-US1	9413

23980 7590 09/19/2007

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C
1400 PAGE MILL ROAD
PALO ALTO, CA 94304-1124

EXAMINER	
GOFF II, JOHN L	

ART UNIT	PAPER NUMBER
1733	

MAIL DATE	DELIVERY MODE
09/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,008	BUNCH ET AL.	
	Examiner	Art Unit	
	John L. Goff	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20 and 22-34* is/are pending in the application.

4a) Of the above claim(s) *27-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 22-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/6/07 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claim 23 is objected to because of the following informalities: Claim 23 depends from itself. It appears claim 23 should be amended to depend from claim 19. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. Claims 19, 20, and 22-25 are rejected under 35 U.S.C. 102(b) as anticipated by Hacker et al. (U.S. Patent Application Publication 2002/0002265).

Hacker et al. disclose a method of producing a composition comprising a novolac resin and adding a solvent thereto (Paragraphs 18 and 19). Hacker et al. teach the solvent consists of

ethyl acetate which is a solvent having a boiling point in the range of about 30 °C to about 80 °C (Paragraph 18).

In summary, Hacker et al. teach a composition comprising a novolac resin and a single solvent consisting of ethyl acetate wherein the novolac resin is considered a resist adhesive resin, the composition is considered an adhesive composition, and the composition does not include, i.e. excludes, solvents having a boiling point above about 80 °C.

Regarding claim 20, Hacker et al. teach the novolac resin is present in an amount of for example about 50 wt.%, (Paragraph 19) such that the claim limitation is met.

Regarding the limitation "of improving the adhesive characteristics of an adhesive composition for use in bonding a ceramic material to a manufacturing tool" as stated in the preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the composition produced by Hacker et al. is capable of being used in this manner (See MPEP 2111.02).

5. Claims 19 and 22-26 are rejected under 35 U.S.C. 102(b) as anticipated by Uetani et al. (U.S. Patent Application Publication 2001/0026905).

Uetani et al. disclose a method of producing a resist composition comprising a novolac resin and adding a solvent thereto Uetani et al. teach the solvent consists of acetone which is a solvent having a boiling point in the range of about 30 °C to about 80 °C (Paragraphs 10 and 22).

In summary, Uetani et al. teach a composition comprising a novolac resin and a solvent consisting of acetone wherein the novolac resin is considered a resist adhesive resin, the

composition is considered an adhesive composition, and the composition does not include, i.e. excludes, solvents having a boiling point above about 80 °C.

Regarding the limitation "of improving the adhesive characteristics of an adhesive composition for use in bonding a ceramic material to a manufacturing tool" as stated in the preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the resist composition produced by Uetani et al. is capable of being used in this manner (See MPEP 2111.02).

6. Claims 19 and 22-26 are rejected under 35 U.S.C. 102(b) as anticipated by Teiichi et al. (WO 01/60938 with U.S. Patent Application Publication 2003/0069331 used as a translation).

Teiichi et al. disclose a method of producing an adhesive composition comprising an epoxy adhesive resin and adding a solvent thereto. Teiichi et al. teach the solvent consists of acetone which is a solvent having a boiling point between 30 °C and 80 °C (Paragraphs 1, 33, and 137).

In summary, Teiichi et al. teach a composition comprising an epoxy resin and a solvent consisting of acetone wherein the epoxy resin is considered a resist adhesive resin, the composition is considered an adhesive composition, and the composition does not include, i.e. excludes, solvents having a boiling point above about 80 °C.

Regarding claim 23, Teiichi et al. teach the epoxy resin comprises novolac resin (Paragraph 33).

Regarding the limitation "of improving the adhesive characteristics of an adhesive composition for use in bonding a ceramic material to a manufacturing tool" as stated in the

preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the composition produced by Teiichi et al. is capable of being used in this manner (See MPEP 2111.02).

7. Claims 19, 22, 24, and 25 are rejected under 35 U.S.C. 102(b) as anticipated by Asami et al. (JP 60221476 and see also the JPO and Derwent abstracts).

Asami et al. disclose a method of producing an adhesive composition comprising a cellulose polymer resin and adding a solvent thereto. Asami et al. teach the solvent consists of methylethyl ketone which is a solvent having a boiling point between 30 °C and 80 °C (See the abstracts).

In summary, Asami et al. teach a composition comprising a cellulose polymer resin and a solvent consisting of methylethyl ketone wherein the cellulose polymer resin is considered a resist adhesive resin, the composition is considered an adhesive composition, and the composition does not include, i.e. excludes, solvents having a boiling point above about 80 °C.

Regarding the limitation "of improving the adhesive characteristics of an adhesive composition for use in bonding a ceramic material to a manufacturing tool" as stated in the preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the composition produced by Asami et al. is capable of being used in this manner (See MPEP 2111.02).

Claim Rejections - 35 USC § 103

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 15-20 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz (U.S. Patent 5,406,694) in view of Teiichi et al.

Ruiz discloses a method of forming a slider for a hard disk drive including providing a ceramic chunk (40 of Figure 6) from a wafer and bonding the air bearing side of the ceramic chunk to a ceramic manufacturing tool (50 of Figure 6) through a layer of thermoset adhesive (Figure 6 and Column 1, lines 6-8 and Column 5, lines 35-38 and Column 7, lines 38-49). Ruiz does not specifically describe using an adhesive including a solvent, it being noted Ruiz are not limited to any particular thermoset adhesive. Teiichi et al. disclose a method of producing a thermoset adhesive composition having excellent heat and moisture resistance with no volatilization for bonding a ceramic substrate, e.g. a ceramic material, to another ceramic substrate, e.g. semiconductor chip, comprising an epoxy adhesive resin considered a resist adhesive resin, e.g. a novolac resin, and a solvent added thereto such as acetone considered a solvent having a boiling point between 30 °C and 80 °C where the composition does not include, i.e. excludes, solvents having a boiling point above about 80 °C (Paragraphs 1, 31, 33, 131, 137,

145, 152, and 155). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adhere the ceramic chunk to the ceramic manufacturing tool as taught by Ruiz using the thermoset adhesive including solvent used for adhering ceramic substrates together taught by Teiichi et al. which has excellent heat and moisture resistance with no volatilization.

Regarding the limitations of "the solvent has a boiling point in the range of about 30 °C and about 80 °C" and "wherein the composition excludes solvents having boiling points above about 80 °C", Teiichi et al. teach including a solvent chosen from a list including a number of solvents meeting the limitations including acetone, it being noted Teiichi et al. use a single solvent from the list. Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the particular solvents taught by Ruiz as modified by Teiichi et al. in the adhesive composition as the (only) solvent including a solvent having a boiling point in the range of about 30 °C to about 80 °C such as acetone as was specifically suggested by Teiichi et al.

Regarding claim 20, Teiichi et al. do not specifically disclose the amount of resist adhesive resin in the adhesive composition. Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the particular resist adhesive resin content in Ruiz as modified by Teiichi et al. as a function of the heat and moisture resistance properties of the adhesive composition as doing so would have required nothing more than ordinary skill and routine experimentation.

10. Claims 1-5, 7-10, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz and Teiichi et al. as applied to claims 15-20 and 22-26 above, and further in view of Tanaka et al. (U.S. Patent 4,376,194).

Ruiz and Teiichi et al. as applied above teach all of the limitations in claims 1-5, 7-10, and 12-14 except for a specific teaching of applying the adhesive composition to bond the ceramic chunk to the ceramic manufacturing tool by applying the adhesive composition to the ceramic chunk, contacting the ceramic manufacturing tool with the adhesive composition on the surface of the ceramic chunk to bond the tool and chunk, and subjecting the adhesive composition located between the ceramic chunk and ceramic tool to conditions effective to remove the solvent from the adhesive. Ruiz is not limited to any particular method of applying the adhesive composition. Teiichi et al. suggest applying the adhesive composition to bond two substrates by first forming the adhesive composition into an adhesive film, placing the adhesive film, between the two substrates, and contacting the substrates and adhesive film to bond the two substrates, but Teiichi et al. are not limited to this method (Paragraph 148). It is considered well taken in the art of applying an adhesive composition including a solvent to bond two substrates to apply the adhesive composition to a first substrate, contacting a second substrate with the adhesive composition on the surface of the first substrate to bond the first and second substrates, and subjecting the adhesive composition located between the substrates to conditions effective remove the solvent from the adhesive as shown for example by Tanaka et al. (Column 8, lines 46-52) wherein Tanaka et al. also note as an alternative forming the adhesive into a film and then bonding the two substrates (Column 8, lines 20-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the adhesive composition as

taught by Ruiz as modified by Teiichi et al. by applying the adhesive composition to the ceramic chunk, contacting the ceramic manufacturing tool with the adhesive composition on the surface of the ceramic chunk to bond the tool and chunk, and subjecting the adhesive composition located between the ceramic chunk and ceramic manufacturing tool to condition effective to remove the solvent from the adhesive as is well taken in the art and shown by Tanaka et al. to avoid the extra step of forming the adhesive composition into a film.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz, Teiichi et al., and Tanaka et al. as applied to claims 1-5, 7-10, and 12-14 above, and further in view of Schafer (U.S. Patent 5,421,884).

Ruiz, Teiichi et al, and Tanaka et al. as applied above teach all of the limitations in claim 11 except for a specific teaching of using vacuum conditions to remove the solvent from between the ceramic chunk and ceramic manufacturing tool. Schafer is exemplary of the known technique for removing solvent from an adhesive in the microelectronics industry by applying vacuum and heat conditions to the adhesive to remove substantially all air bubbles and solvent inclusions within the adhesive (Column 1, lines 29-34 and Column 3, lines 30-39). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Ruiz as modified by Teiichi et al. and Tanaka et al. vacuum conditions to remove the solvent from the adhesive as shown for example by Schafer to remove substantially all air bubbles and solvent inclusions within the adhesive.

12. Claims 1-5, 6, 8, 9, 12-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz in view of Asami et al. (JP 60221476 and see also the JPO and Derwent abstracts) and Tanaka et al.

Ruiz discloses a method of forming a slider for a hard disk drive including providing a ceramic chunk (40 of Figure 6) from a wafer and bonding the air bearing side of the ceramic chunk to a ceramic manufacturing tool (50 of Figure 6) through a layer of thermoset adhesive (Figure 6 and Column 1, lines 6-8 and Column 5, lines 35-38 and Column 7, lines 38-49). Ruiz does not specifically describe using an adhesive including a solvent, it being noted Ruiz are not limited to any particular thermoset adhesive. Asami et al. disclose a method of producing an adhesive bonding composition considered a thermoset adhesive composition having excellent heat and solvent resistance comprising an acetate cellulose polymer resin considered a resist adhesive resin and a solvent added thereto such as methylethyl ketone considered a solvent having a boiling point between 30 °C and 80 °C where the composition does not include, i.e. excludes, solvents having a boiling point above about 80 °C (See the JPO and Derwent abstracts). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adhere the ceramic chunk to the ceramic manufacturing tool as taught by Ruiz using the thermoset adhesive including solvent taught by Asami et al. which has excellent heat and solvent resistance.

Regarding the limitation of "the solvent has a boiling point in the range of about 30 °C and about 80 °C" and "wherein the composition excludes solvents having boiling points above about 80 °C", Asami et al. teach including a solvent chosen from a list of two solvents at least one of which methylethyl ketone meets the limitations. Absent any unexpected results, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the particular solvents as taught by Ruiz as modified by Asami et al. in the adhesive composition as the (only) solvent including a solvent having a boiling point in the range of about 30 °C to about 80 °C such as methylethyl ketone as was specifically suggested by Asami et al.

Ruiz and Asami et al. do not specifically teach applying the adhesive composition to bond the ceramic chunk to the ceramic manufacturing tool by applying the adhesive composition to the ceramic chunk, contacting the ceramic manufacturing tool with the adhesive composition on the surface of the ceramic chunk to bond the tool and chunk, and subjecting the adhesive composition located between the ceramic chunk and ceramic tool to conditions effective to remove the solvent from the adhesive, it being noted neither Ruiz or Asami et al. are limited to any particular application method. It is considered well taken in the art of applying an adhesive composition including a solvent to bond two substrates to apply the adhesive composition to a first substrate, contacting a second substrate with the adhesive composition on the surface of the first substrate to bond the first and second substrates, and subjecting the adhesive composition located between the substrates to conditions effective remove the solvent from the adhesive as shown for example by Tanaka et al. (Column 8, lines 46-52) wherein Tanaka et al. also note as an alternative forming the adhesive into a film and then bonding the two substrates (Column 8, lines 20-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the adhesive composition as taught by Ruiz as modified by Asami et al. by applying the adhesive composition to the ceramic chunk, contacting the ceramic manufacturing tool with the adhesive composition on the surface of the ceramic chunk to bond the tool and chunk, and subjecting the adhesive composition located between the ceramic chunk

and ceramic manufacturing tool to condition effective to remove the solvent from the adhesive as is well taken in the art and shown by Tanaka et al. to easily bond the ceramic chunk and ceramic manufacturing tool.

Regarding claims 2-4, Asami et al. do not specifically disclose the amount of resist adhesive resin in the adhesive composition. Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the particular resist adhesive resin content in Ruiz as modified by Asami et al. as a function of the heat and moisture resistance properties of the adhesive composition as doing so would have required nothing more than ordinary skill and routine experimentation.

Response to Arguments

13. Applicant's arguments with respect to claims 1-20 and 22-26 have been considered but are moot in view of the new ground(s) of rejection.

> Applicants argue, "Hacker does not anticipate Claim 19 because Hacker does not teach an adhesive composition that excludes solvents having boiling points above about 80° C. Rather, Hacker discloses ethyl lactate as a representative solvent. See paragraph 18. As can be seen with reference to Exhibit A, ethyl lactate has a boiling point of about 155° C. Accordingly, Hacker does not teach all the elements of the rejected claims and consequently does not anticipate the claimed invention. The Applicants, therefore, respectfully request that this rejection be withdrawn.".

Hacker et al. disclose an adhesive composition comprising a resist adhesive resin and a solvent added thereto. Hacker et al. suggest a number of specific solvents each of which is suitable alone including ethyl acetate which is a solvent having a boiling point in the range of about 30 °C to about 80 °C. Thus, Hacker et al. **expressly** teach an adhesive composition comprising a resist adhesive resin and a solvent **consisting of** ethyl acetate. This specifically

disclosed composition does not include, i.e. the composition excludes, solvents having boiling points above about 80 °C. Hacker et al. anticipate claim 19 as Hacker et al. expressly teach the use of each of the solvents with the resist adhesive resin wherein a number of the solvents and specifically ethyl acetate form an expressly disclosed composition consisting of a solvent which meets the claim limitations. The same is true for Uetani et al., Teiichi et al., and Asami et al.

> Applicants further argue, "The Applicants respectfully disagree and contend that the Office has not set forth a proper motivation to combine the references. Specifically, the properties relied upon by the Office as a motivation to combine the references are not due to the solvent in the adhesive, but rather are due to the particular epoxy resin that makes up the adhesive composition .".

As set forth in the rejection, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adhere the ceramic chunk to the ceramic manufacturing tool as taught by Ruiz using the thermoset adhesive including solvent used for adhering ceramic substrates together taught by Teiichi et al. which has excellent heat and moisture resistance with no volatilization. Thus, Ruiz is modified to include the adhesive composition taught by Teiichi et al. and not just solvent.

> Applicants further argue, "Here there is no motivation provided by Teiichi to select the clamed subgenus from the broad genus disclosed. Accordingly, to derive the Applicants' claimed solvent, one of skill in the art, in view of Teiichi, must "pick and choose" from Teiichi's long laundry list, a particular compound, i.e., acetone, with no guidance what so ever provided by Teiichi as to why a solvent with a boiling point between about 30 °C to about 80 °C should be preferred over those other solvents that do not. Teiichi simply does not give any guidance to the skilled artisan that would motivate one to select a solvent that would meet the Applicants claimed elements. Therefore, a *prima facie* case of obviousness has not been established because the recited combination fails to teach or suggest all the elements of the rejected claims, namely a resist adhesive resin that includes a solvent, that has a boiling point in the range of about 30 °C to about 80 °C.".

Teiichi et al. does not simply disclose a broad genus. Rather, Teiichi et al. expressly suggest using a solvent chosen from a specific list. Teiichi et al. do not teach away from using

any of the specific solvents in the list as all are suitable choices, it being noted a number of the solvents meet the limitation of having a boiling point in the range of about 30 °C to about 80 °C wherein choosing one these solvents would form an adhesive composition whose solvent consists of a specific solvent having a boiling point in the range of about 30 °C to about 80 °C and does not include, i.e. the composition excludes, solvents having boiling points above about 80 °C. Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the particular solvents taught by Ruiz as modified by Teiichi et al. in the adhesive composition as the (only) solvent including a solvent consisting of a material having a boiling point in the range of about 30 °C to about 80 °C such as acetone as was suggested by Teiichi et al. Applicants have not shown any unexpected results persuasive to overcome the rejection.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John L. Goff
Primary Examiner
Art Unit 1733